



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/040,284

10/26/2001

Lowell L. Wood JR.

10591/3

9631

7590

05/03/2005

William A. Webb
c/o Brinks Hofer Gilson & Lione
P.O. Box 10395
Chicago, IL 60610

EXAMINER

LEE, DAVID J

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/040,284

Applicant(s)

WOOD ET AL.

Examiner

David Lee

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-81 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-81 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-6, 80/1, and 81/1, drawn to an optical communications system comprising at least one optical circuit, each optical circuit comprising: a set of at least one downstream client unit, each client unit comprising: an optical receiver which accepts an incoming optical signal; a photodetector associated with the respective optical receiver and responsive to electromagnetic radiation accepted by it; a demodulator associated with the respective photodetector; a set of at least one upstream master unit, each master unit semi-permanently optically coupled to the respective client unit, each master unit comprising: an optical source operative to generate an optical signal characterized by a free-space wavelength less than about 10 micrometers; a modulator operative to modulate the respective optical signal; an optical beam director associated with the respective optical source and operating to direct the respective optical signal into free-space; a free-space air-path through which optical radiation from the master unit travels before arriving at the client unit; and a set of at least one optical beam-deflector through which the optical signal from at least one master unit travels before arriving at the respective client unit, each optical beam-deflector dedicated to the

respective optical circuit on a semi-permanent basis, classified in class 398, subclass 130.

- II. Claims 7-48, drawn to an optical communications system alignment method to automatically establish a free-space optical circuit, said method comprising: (a) providing a steerable optical transmitter component operative to generate an angularly-limited optical signal; a set (comprising zero, one, or more) of steerable optical beam-deflector components; and a steerable optical receiver component having angularly limited responsivity to incident optical signals; and (b) automatically and sequentially aligning each of the components with a next component in the free-space optical circuit, classified in class 398, subclass 131.
- III. Claims 49-79, 80/55,56, 81/55,56, drawn to an optical receiver system operative to accept an angularly-limited free-space optical signal characterized by a free-space wavelength less than about 10 micrometers, comprising: a spatial filter limiting an acceptance angle of the incident optical signal to a value $\Delta\theta$; a spectral filter limiting an acceptance spectral passband of the incident optical signal to a value $\Delta\lambda$, wherein $(\Delta\lambda) * (\Delta\theta)^2$ is less than about 10^{-4} nm * rad²; a photodetector associated with the respective optical receiver and responsive to electromagnetic radiation accepted by the spatial filter and the spectral filter; a demodulator associated with the respective photodetector., classified in class 398, subclass 202.

2. The inventions are distinct, each from the other because of the following reasons:

Inventions I, II, and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are unrelated because invention I is related to an optical communications system comprising at least one upstream master unit, each master unit comprising: an optical source operative to generate an optical signal characterized by a free-space wavelength less than about 10 micrometers; a modulator operative to modulate the respective optical signal; and an optical beam director associated with the respective optical source and operating to direct the respective optical signal into free-space. Invention II is related to an alignment method, comprising: providing a steerable optical transmitter component to generate an angularly-limited optical signal. Invention III is related to an optical receiver system, comprising: a spatial filter limiting an acceptance angle of the incident optical signal to a value $\Delta\theta$; a spectral filter limiting an acceptance spectral passband of the incident optical signal to a value $\Delta\lambda$, wherein $(\Delta\lambda) * (\Delta\theta)^2$ is less than about $10^{-4} \text{ nm} * \text{rad}^2$.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.


4. Because these inventions are distinct for the reasons given above and the search required for each group is not required for the other group, restriction for examination purposes as indicated is proper.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lee whose telephone number is (571) 272-2220. The examiner can normally be reached on Monday - Friday, 9:00 am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DL


JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600